AMENDMENTS TO THE DRAWINGS:

Applicant submits herewith one sheet of annotated drawing showing an amendment to Figure 1a, accompanied by one sheet of replacement drawing incorporating such change.

Attachments: Annotated Sheet: 1
Replacement Sheet: 1

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The rejection of claims 1, 3-6, 8-12, 14-17, 19-27 and 29-31 under 35 U.S.C. §103 as allegedly being made "obvious" based on Gregerson '351 in view of O'Toole '273 is respectfully traversed.

The Examiner quotes some language from claim 1 and alleges that Gregerson at Fig. 9; 3:51-53 and Fig. 14; 2:65-67 teaches all that was quoted. The Examiner is believed to be in error.

Presumably, the Examiner intended to reference 3:57-59 as describing Fig. 9. Presumably, the Examiner intended to reference 4:3-5 as describing Fig. 14. At least those are the text passages which the Examiner appears to have quoted as being respectively descriptive of Figs. 9 and 14.

Actually, the text apparently "quoted" by the Examiner erroneously describes Fig. 9 as showing a "roll" call communication, whereas the more detailed description at col. 9, lines 38 *et seq.*, is more consistent with the remainder of the Gregerson teaching in referring to it as being a diagram of a "role" call procedure. As perhaps better described in connection with Figs. 4-7 and the text beginning at 7:31, the Gregerson PIPES logical network (PLN) layer 33 (e.g., see Fig. 3) is actually a part of the internal architecture of a single PIPES kernel (e.g., again, see Fig. 3). Apparently, the kernel

residing at each node of the logical tree network is capable of taking on any one of the possible "roles" that may be required at a particular logical location in the network. Apparently, these different possible roles for any given kernel are associated with "Min Level" and "Max Level" values. Kernels having normal privileges are configured at Min Level and are not managers. On the other hand, a kernel that is a network manager is configured at Max Level and has the potential to become the network root. The configuration parameter Max Status imposes a ceiling on the highest level at which the kernel can be a manager. A kernel at level n is termed to be a child of its parent kernel at level n+1 provided that the two kernels have the same name above level n (e.g., see 7:31-46).

Apparently, depending upon how a given kernel has been configured, the log-in procedure executed at "child" and "parent" nodes is depicted at Figs. 5-7 and described at 7:48 *et seq*. Referring, for example, to Fig. 7, a new entering node N7 first sends messages "a" depicted by dotted lines to all other nodes of the entire network. If it successfully receives back a return message "b" from a node which recognizes it to be a parent of N7, then node N7 acknowledges same with a return message "c" and logs in to become a child of node N4. Notice that in this entire log-in procedure, entering node N7 does not effect any "connection" except with its self-located single parent node N4. Note also that if a newly entering node receives a role call broadcast for the same level of the hierarchy, then that kernel abandons the role call procedure – apparently to avoid

connections between kernels at the same role level of the hierarchy. See, for example, the algorithm of Fig. 8 (step 204) and the description thereof at 9:4 *et seq.*

Clearly, the passages cited by the Examiner do not teach or suggest a connection algorithm wherein peripheral nodes are not allowed to have fewer connections than the more central nodes in the network (i.e., where the peripheral nodes are required to have at least as many connections (i.e., plural connections) as the more centrally situated nodes). Nor do the passages cited by the Examiner teach or suggest identifying a parent node at a lowest level in the network that is able to maintain secondary connections to other nodes in the network of the same lowest level.

The Examiner's discussion continues by asserting that Gregerson teaches initiating and maintaining a specified number k-1 of further secondary connections between the entering node and other nodes in the network having the same level in the hierarchy. To support this assertion, the Examiner relies upon 7:41-44 ("a kernel at level n is termed to be a child of its parent kernel at level n+1 provided that the two kernels have the same name above level n"). However, the quoted text from Gregerson merely defines how one is to differentiate between child/parent status. It does not in any way teach one to maintain a specified number of further secondary connections between the entering node and other nodes in the network having the same level in the hierarchy.

The Examiner next acknowledges that Gregerson is silent with respect to "terminated and reallocated" nodes and "spare connection." For these admitted deficiencies, the Examiner relies upon O'Toole. However, O'Toole is directed towards maintenance of a map of already established node relationships within a network – not with the establishment of node relationships for newly entering nodes. The sentence quoted by the Examiner from the abstract does not have anything to do with requesting further secondary connections, etc. Instead, it deals solely with periodically having each child node check in with its parent node(s) – thus permitting the parent node(s) to determine if and when a child node has left that relationship (or when a new child has appeared via some other network establishment process). This does not support the Examiner's allegation.

The basic irrelevance of Gregerson has already been discussed at length in applicant's earlier remarks of August 27, 2007; April 8, 2008; and August 5, 2008. Those remarks are incorporated by reference so as not to further burden the record at this point.

The applicant can not find in any of the prior art, any teaching of the applicant's claimed feature of a node belonging to a network having a topology type in which each node joining the network is constrained by the same connection rules to have a maximum number of k connections and wherein peripheral nodes are not allowed to have fewer connections than the more centrally situated nodes in the network. This is a key

feature of the claimed invention as it removes "bottlenecks" from the network. The amended claims attempt to reemphasize the importance of this feature.

In particular, there is absolutely nothing in Gregerson or O'Toole that teaches imposing constraints of the type claimed on connections that the node can form in a network. In the applicant's independent claims, **each node joining the network is constrained by the same connection rules to have a maximum number of connections and peripheral nodes have at least the same number of connections as more centrally situated nodes (i.e., a peripheral node is not allowed to have fewer connections than the more central nodes in the network)**.

If the Examiner disagrees, it is respectfully requested that the Examiner identify the actual passage(s) in Gregerson and/or O'Toole that teach this feature. In Gregerson, the role call process helps nodes to find other "missing nodes." Fig. 9 of Gregerson, to which the Examiner has repeatedly referred, for example, very clearly does not teach imposing this type of constraint – in fact, the connections shown by the broadcast messages in Fig. 9 of Gregerson are totally different from those which the claimed invention requires.

For example, in Fig. 9 of Gregerson, the unlabelled solid lines apparently represent inter-node connections. The dotted lines h, i, j, k represent role call messages that are sent via such connections (e.g., see 9:38-66). Note the bottleneck at node N4. Further, even if it is assumed *arguendo* that all solid and dotted lines in Fig. 9 are

"connections," then nodes N1, N5, N6 and N7 each have only three connections (shown by the dashed paths taken by the broadcast messages from nodes N5 and N7) – and not the four connections that would be required by claim 1 (which requires each of these peripheral nodes N1, N5, N6 and N7 to have four connections as the more central nodes N2, N3 and N4 all have four connections). All that is being achieved by the role call process is the identification of missing "nodes" by vacancies in the name space hierarchy (see 8:62-63). That is, if a node at a particular level does not respond to a broadcast message from a node, then it is presumed "missing" (and hence this part of Gregerson is called a "role call" by analogy to the military role call process to determine when a solider does not answer the role call that the solider is missing)!

Moreover, as the Examiner himself has acknowledged, in O'Toole a root node maintains a map of the nodes in the network and, if nodes move in the network, the root receives the termination/creation signals and uses this information to update the root's map of the network. It is clear from O'Toole (see 3:44-64) that the root uses its map to provide content over pathways through the network, so that no matter how large the network, all updates must involve referring to the root.

However, the claimed invention seeks to reduce the amount of communication with a root node by providing a network in which nodes are pre-configured to form certain connections – i.e., the nodes are constrained to adopt a particular network configuration. This gives more flexibility and means that a root node does not need to

impose constraints on where a node sits in the nodal hierarchy when a new node wants to join the network as is taught by O'Toole. This is so because the claimed invention requires each node to be pre-configured to have a certain number of connections which conform to the required network topology.

The Examiner is thanked for providing a "response to arguments" section bridging pages 19-23. However, with respect, the Examiner's responses are not logical.

The Examiner emphasizes that it is the claims that define the claimed invention, not applicant's arguments. Of course, the applicant agrees. However, the applicant's arguments are clearly based on explicitly claimed subject matter. The Examiner's responses to applicant's arguments appear to be non-attributed quotations from various portions of the Gregerson specification followed by a *non sequitur*: "Therefore Examiner maintains the rejection." If the Examiner continues to believe that the quoted sections of Gregerson are relevant in rebutting applicant's specific arguments, then it is respectfully requested that the Examiner at least identify exactly where in Gregerson the quotation may be found. Among other things, the Examiner is respectfully requested to distinguish between the PLN layer 33 in the internal PIPES kernel architecture (e.g., see Fig. 3) and the external connections being made between nodes in a network of such kernels. Clear distinction is also needed between inter-node connections – and inter-nodal messages which must travel via such connections.

For example, the "Examiner response" at page 21 (to the argument that Gregerson does not teach initiating and maintaining a specified number k-1 of further secondary connections between the entering node and other nodes in the network having the same hierarchical level) apparently quotes (without attribution) from Gregerson at 7:31-46. However, this description of the Fig. 4 Gregerson algorithm appears to be related to the internal processes of a given kernel and describes only the fact that each kernel is capable of performing the five processes depicted in Fig. 4. While the number of levels in the PLN 33 (i.e., of the internal kernel architecture as depicted in Fig. 3) may well be defined by the Min Level and Max Level parameters, that has nothing to do with initiating and maintaining a specified number of further secondary connections between an entering node and other nodes in the network having the same level in the hierarchy.

Given such fundamental deficiencies of both references with respect to already discussed features of each independent claim, it is not believed necessary at this time to detail additional deficiencies of these references with respect to other aspects of the rejected claims. Suffice it to note that, as a matter of law, it is impossible for even a *prima facie* case of "obviousness" to be supported unless the cited prior art at least teaches or suggests each and every feature of the rejected claims.

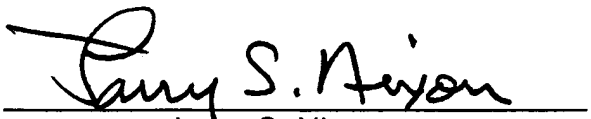
The Examiner's attention is also directed to new independent claim 32 which is drawn to an entire network of nodes comprising a plurality of nodes which can be

interconnected and disconnected from each other for communication purposes, as well as requirements that each node be arranged so as to effect a specified connection process wherein the network has a topology type in which each node joining the network is constrained by the same connection rules to have a maximum number of k connections and wherein peripheral nodes have at least the same number of connections as more centrally situated nodes in the network. Such is believed to be contrary to the teaching of the cited prior art.

Should the Examiner continue to have problems with allowance of this application, it is respectfully requested that the undersigned be telephoned for an interview in an attempt to resolve what may well be miscommunications at the present time.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

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ANNOTATED MARKED UP DRAWINGS
FOR SN 10/530,472

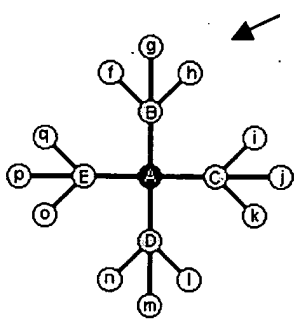

Figure 1a
(PRIOR ART)

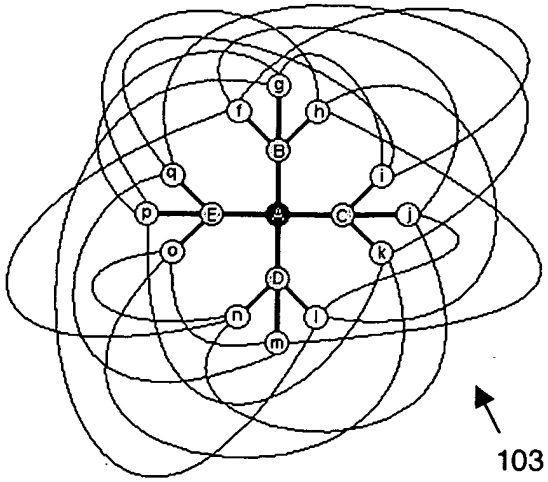

Figure 1b